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INSTRUCTION MEMORANDUM NO. 1.

Black stem rust destroys an average of \$60,000,000 worth of grain in the United States every year. In some years, in Minnesota alone, this disease has damaged the crops to the extent of many millions of dollars. Black stem rust attacks wheat, barley, rye, oats, and many grasses. In a year when the attack of stem rust is severe, the grain, especially wheat, is badly shriveled. The reason for this is that black stem rust is caused by a mold-like parasite which steals much of the plant food that should go to the kernels.

The common barberry begins to spread black stem rust in the spring almost as soon as the grain plants are out of the ground. Once started by the barberry the rust will spread as rapidly as the weather will permit. Cool, damp, weather followed by hot, humid, weather is best for the development of black stem rust. Under these conditions, stem rust develops and spreads very rapidly.

Stem rust is often confused with leaf rust which also has both the red and black stages, but is easily distinguished from stem rust. Leaf rust spots are small, about the size of a pin head, and are orange in color, as compared with the long, brick-red pustules of the stem rust. Leaf rust does little damage to the grain. It is not spread by the common barberry.

To date, in Minnesota, almost 800,000 barberry bushes have been killed. The whole State has been covered once in a preliminary survey. We now are after the straggling bushes which are capable of starting rust in various communities. In order to get these missed bushes, we are asking everybody to aid us in locating them. Our slogan is, "Get the last bush." To reach this goal, every man, woman and child must always be on the lookout for the common barberry.

The inside of the bark and the roots of both the common (harmful) barberry and the Japanese (harmless) barberry is bright yellow in color. If you find this to be the case, make further examination for prickly-edged leaves and currant-like bunches of yellow flowers or red, oval-shaped berries. If the bush you examine has these characteristics, you may be sure that you have found common barberry. However, do not destroy the bush until someone who knows barberry definitely has identified it.

If you think you have located a barberry bush, it is advisable to take a branch to your county agent or agricultural instructor for identification, or send a sprig of the bush to the Barberry Eradication Office, University Farm, St. Paul, Minnesota, which is under the direction of the Office of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture. Be sure to report all findings of common barberry to the proper authorities.

The Minnesota State Department of Agriculture has charge of the enforcing of the weed law. Common barberry is named in this law as a noxious weed. The weed organization consists of the State Commissioner, in Charge, and County-appointed weed inspectors or township chairmen. These people have all the regulatory power to enforce the weed law. Every man, woman, and child should do his utmost to aid them in the eradication of the common barberry.

LESSON PLAN

Teacher's aim

To familiarize students with the role of common barberry in the spread of black stem rust, and to teach them how to identify the bush.

Pupil's aim

To learn the objects of the barberry eradication campaign with the view of aiding in the eradication of all common barberry in his neighborhood.

<u>Subject Matter</u>	<u>:</u>
<u>Importance of black stem rust</u>	:Pages 3 and 15
1. What damage does rust cause each year? What does it do the grain? How many kinds of grain does black stem rust affect?	:Bulletin 1058 :Plate 1 :Instr. Memo. No. 1
<u>Common barberry and the rust</u>	:
2. In what countries has barberry eradication controlled stem rust? What other countries are practicing barberry eradication as a means of stem rust control? In what States of the United States is common barberry being eradicated?	:Page 5, Bul. 1058 :Pages 4 and 5 :Bulletin 1058 Instr. Memo. No. 1
3. What causes black stem rust? How many stages has it? What stage occurs on common barberry bushes? When? What stages are found on grains and grasses? How does the rust live over winter? How is the rust spread from the common barberry to the grain? How is the rust spread from field to field?	:Pages 5, 6 and 15. :Bulletin 1058 :Plate 1 :Instr. Memo. No. 1
<u>Other rusts of grain</u>	:
4. Are there other kinds of rust which attack grain? How do they differ in appearance from stem rust?	: :Instr. Memo. No. 1
<u>Identification, occurrence, eradication of common barberry</u>	:
5. What is common barberry? Where did it come from? For what was it formerly used? How is it identified? What is characteristic of the leaves? Spines? Flowers? Fruits? Bark? Inner bark? What species of barberry is harmless? How is it distinguished from common barberry: Leaves? Spines? Flowers? Fruit? Bark? Inner bark?	:Pages 9, 10, and 11 :Bulletin 1058 :Plate II :Instr. Memo. No. 1 :Draw pictures of leaves, berries and stems of harmful and harmless barberry.
6. How does common barberry escape from cultivation? Where are escaped bushes often found?	:Pages 7, 8 and 9
7. How are common barberry bushes killed? Why is digging them out unsafe? What are barberry sprouts? If you should find some common barberry, to whom should you show it for definite identification and to what agency should common barberry be reported?	:Bulletin 1058 : :U.S.D.A.Circ.332 or 5 :Instr. Memo. No. 1
<u>Agencies in charge of campaign in Minnesota</u>	:
8. What department of the Federal government is in charge of the campaign?	:
9. To what office should you report all common barberry bushes?	:Instr. Memo. No. 1
<u>Relation of weed inspection to barberry eradication</u>	:
10. What relation has the Minnesota noxious weed law to the barberry eradication campaign? What organization in the State of Minnesota has charge of the enforcement of this law? What should any citizen do to help eradicate barberry and other noxious weeds?	:Instr. Memo. No. 1